

Title: One, Two, Three Little Pigs

Brief Overview:

This performance-based learning unit is comprised of five activities: Read-Aloud: The Three Little Pigs, House Collage, Piggy Glyph, House Construction and Designing Oink Street. Each activity is centered around the book, *The Three Little Pigs*, by Paul Galdone. This unit integrates mathematics with children's literature, language arts, and visual arts. The activities in the unit allow for students to actively solve problems and to explore while working in cooperative groups. Communication skills will be developed through discussions, journal responses, descriptive and persuasive letters, and interpretations of glyphs.

Links to NCTM Standards:

- **Mathematics as Problem Solving (All Activities)**
Students will demonstrate their ability to solve problems in mathematics by constructing models in a cooperative atmosphere.
- **Mathematics as Communication (All Activities)**
Students will demonstrate their ability to communicate mathematically by reading what they have written, by writing letters and journal entries, and by discussing their observations. As they communicate, they will use the language and the signs, symbols, and terms of the discipline.
- **Mathematics as Reasoning (All Activities)**
Students will demonstrate their ability to reason mathematically. They will compare and contrast collages, interpret glyphs, use models, and build arguments.
- **Mathematical Connections (All Activities)**
Students will demonstrate their ability to connect mathematics topics within the discipline, with language arts, with the visual arts, and with children's literature. They will also relate the use of mathematics in their daily lives by observing shapes in their surroundings.
- **Number Sense and Numeration (Activities 2 and 5)**
Students will demonstrate their ability to describe and apply number relationships using concrete and abstract materials. They will count accurately, record data in appropriate locations, and determine the reasonableness of their answers.
- **Geometry and Spatial Sense (All Activities)**
Students will demonstrate their ability to apply geometric relationships using two and three dimensional objects. They will construct geometric objects.
- **Measurement (Activity 5)**
Students will demonstrate their ability to count to determine area and perimeter.

Grade/Level:

Grades 1-3

Duration/Length:

Each activity varies in length. All of them require at least 45 minutes. The writing activities would probably require another block of time.

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

1. Working cooperatively
2. Creating glyphs by following a glyph key
3. Counting
4. Recognizing and identifying grade appropriate shapes
5. Defining area and perimeter

Objectives:

Throughout the unit, the students will be able to:

Activity 1:

1. discuss the use of lines, shapes, medium, and colors in illustrations.

Activity 2:

1. create a collage using a set number and kinds of shapes.
2. work cooperatively.
3. compare and contrast collages using a Venn Diagram.
4. communicate their findings orally or written.

Activity 3:

1. identify shapes.
2. create a glyph using a glyph key.
3. interpret a glyph using a glyph key.

Activity 4:

1. work cooperatively.
2. construct a model of a pig's house using the given materials.
3. write a descriptive letter.

Activity 5:

1. design a street using area and perimeter.
2. label the diagram.
3. interpret their diagrams.
4. write to persuade

Materials/Resources/Printed Materials:

Activity 1:

Book: Galdone, Paul (1970). *The Three Little Pigs*. New York: Clarion Books.
*optional: other illustrators'/ artists' pictures to further discussion on lines and shapes

Activity 2:

Large pieces of white construction paper
Lots of shapes of various sizes and colors cut from construction paper
Glue
Student copies of Venn Diagram (Resource Sheet 1)
Student journals

Activity 3:

Paper plates (small and large)
Crayons or markers
Glue
Construction paper
Scissors
Pipe cleaners
“Piggy Glyph” key (Resource Sheet 2)
Rubric for “Piggy Glyph” (optional) (Resource Sheet 3)

Activity 4:

Drinking straws (for straw house)
Craft sticks (for stick house)
Sugar cubes (for brick house)
Glue
Paint (yellow, brown, red)
Paint brushes
Think About Graphic Organizer (Resource Sheet 4)
Writing Prompt: Writing to Inform (Resource Sheet 5)
Rubric for Writing Prompt: Writing to Inform(Resource Sheet 6)

Activity 5:

Crayons/markers
One inch graph paper (Resource Sheet 7)
Directions for Designing Oink Street (Resource Sheet 8)
Think About Graphic Organizer (Resource Sheet 4)
Writing Prompt: Writing to Persuade (Resource Sheet 9)
Rubric for Writing Prompt: Writing to Persuade (Resource Sheet 10)

Development/Procedures:

Activity 1: Read-Aloud: *The Three Little Pigs* (Mathematics, Language Arts, and Art)

LINKS: Problem Solving, Communication, Reasoning, Connections, Geometry and Spatial Sense

1. Read aloud the story *The Three Little Pigs*.
2. Discuss the illustrations---the use of lines (directions, straight or curved, size, light or dark, etc.). Look for shapes throughout. Especially take a good look at the three little pigs' houses. Do they use regular geometric shapes, only one or two, or are there many shapes within one particular structure?
3. Discuss the medium that the artist used. Is it pen, watercolor, oil pastels, collage, etc.? What colors are used? What role do they play?
4. Ask the students if they know of any other illustrators/artists who create pictures similar to these.

*Assessment is through listening to the students as the discussion takes place.

Activity 2: House Collage (Mathematics, Language Arts, and Art)

LINKS: Problem Solving, Communication, Reasoning, Connections, Geometry and Spatial Sense

1. Divide the students into pairs.
2. Give each pair a large piece of plain white paper, glue, and a pile of shapes of various sizes and colors.
3. Have the groups design a house using a set number of each shape. Give them more than what they will need so that they have to find the ones that they will need.
(Example: Instruct them to construct a house using 3 triangles, 4 squares, 5 rectangles, 4 circles.)
4. Have each group work with another group to compare and contrast their houses. Use a Venn Diagram.
5. Using the information collected in their Venn Diagrams, have each student share their findings with the class orally, or write a few sentences in his journal.

*Assessment is through observations as the students create, compare, and write about their house collages.

Activity 3: Piggy Glyph (Mathematics, Language Arts, Art)

LINKS: Problem Solving, Communications, Reasoning, Connections, Geometry and Spatial Sense

1. Review the "Piggy Glyph" key with students.
2. Review the rubric for "Piggy Glyphs" with students (if being used).
3. Give each student materials so that they may create a glyph.
4. Have students work independently on their "Piggy Glyphs".
5. Allow students to switch completed glyphs with classmates.
6. Inform students that they are to use the glyph key to interpret their partner's glyph.
This may be done through oral or written communication.
7. Collect and display completed glyphs.

*Assessment is through observation as the students create and interpret the glyphs. The rubric can be used as a formal assessment for the glyph.

Activity 4: House Construction (Mathematics, Language Arts, and Art)

LINKS: Problem Solving, Communication, Reasoning, Connections, Geometry and Spatial Sense

1. Recall the story: *The Three Little Pigs* and how they built their houses.
2. Divide the students into pairs.
3. Determine the kind of house each group will construct (straw, stick, brick).
4. Give groups the appropriate materials.
5. Have the students construct their houses and then paint if desired.
6. When constructions are completed, review the Think About Graphic Organizer, Writing Prompt and Rubric with the students. (This is possibly another session.)
7. Have each student write the letter. The students could share their letters.
8. Collect letters.

*Assessment is through observation as the students construct their models. The rubric can be used as a formal assessment for the descriptive letter.

Activity 5: Designing Oink Street (Mathematics, Language Arts)

LINKS: Problem Solving, Communication, Reasoning, Connections, Geometry and Spatial Sense, Measurement

1. Tell the students that they will be designing a street where the famous three little pigs want to live.
2. Give the students two pieces of 1 inch graph paper. One will be a rough draft and the other a final draft.
3. Give the students the directions: Designing Oink Street in Pigville, USA
4. Read the directions together and have the students begin. Recall what the words *area* and *perimeter* mean.
5. Discuss the designs when everyone has finished and display.
6. When diagrams are completed, review the Think About Graphic Organizer, Writing Prompt and Rubric with the students. (This is possibly another session.)
7. Have each student write the letter. The students could share their letters.
8. Collect letters.

*Assessment is through observation as the children design the street as well as through scoring their persuasive letters using a rubric.

Performance Assessment:

Throughout this unit the teacher will be able to assess the students formally by using rubrics provided and reading their written work; and informally by listening and observing them as they work. At the end of each activity, specific assessments are mentioned.

Extension/Follow Up:

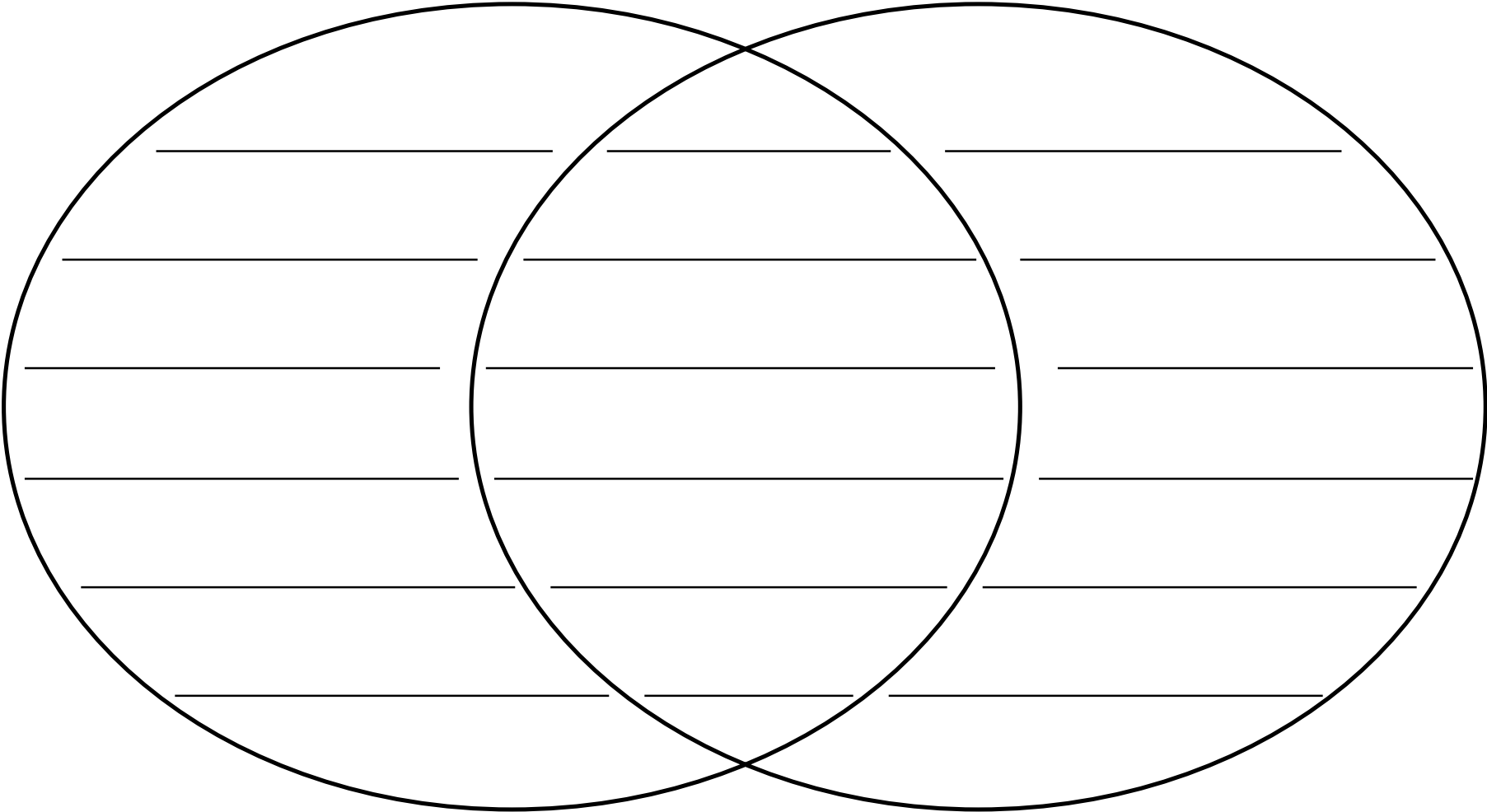
1. Show a video of “The Three Little Pigs”. Identify shapes.
2. Exhibit finished products during Family Night or invite other classes to see the projects.
3. Introduce other artists/illustrators to further discussions on lines and shapes.
4. Visit an art museum to enhance students’ understanding of the use of geometry and spatial sense in art.

5. Go on a walking trip. Identify the shapes of buildings that surround the school or homes.
6. Compare and contrast the many versions of *The Three Little Pigs*.

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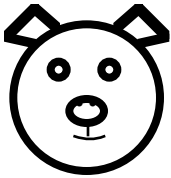
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Piggy Glyph

1. Have you ever touched a pig before?
COLOR OF PLATES
YES = pink NO = brown
2. If you were one of the 3 little pigs, what would you build your house from?
EARS
straw = square, sticks = circle, bricks = triangle
3. Do you think that the wolf would be able to blow down your choice of house in number 2?
SNOUT
YES = big circle NO = little circle
4. Have you listened to or read the story *Charlotte's Web* by E.B. White?
HANDS
YES = squares NO = triangles
5. Have you seen the video of *Charlotte's Web*?
LEGS
YES = rectangles NO = triangles
6. Have you listened to or read the story *The True Story of the Three Little Pigs* by Jon Scieszka?
EYES
YES = with eyelashes NO = without eyelashes
7. Would you like to be a pig for a day?
TAIL
YES = curly NO = straight
8. Did you like doing this glyph?
MOUTH
YES = smile NO = frown

Piggy Glyph Rubric



3-

answered all 8 questions with appropriate choices of shapes for each question



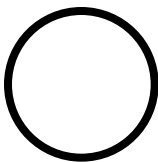
2-

answered at least 5 questions with appropriate choices of shapes for each question



1-

answered at least 2 questions with appropriate choices of shapes for each question



0-

no attempt was made or only attempted one question

Name:		Date:	
Think About 1 Idea/Question			
Think About 2 Idea/Question			
Think About 3 Idea/Question			

Writing Prompt: Writing to Inform (Your New House)

Your New House

Pretend that you are one of the three little pigs. You have just constructed your new house. Since you are so excited, you decide to write a letter to your friend describing your new home.

Before you begin writing, look at your new house. Think about the shapes you see. Think about the materials you used to build it. Think about how you would feel inside your new house. In your letter, tell at least three things about your new home. Be sure to use math words and lots of adjectives. Remember the five parts of a letter.

Now, write the letter to your friend about your new home. Since you want your friend to understand you, be sure to use complete sentences and your best handwriting. Check your punctuation, capitalization, and spelling.

Holistic Rubric

Writing to Inform: Your New House

The writer:

- 3-- describes at least three things about the house using math words and adjectives

includes all parts of the letter

always uses complete sentences

has no errors in punctuation, capitalization, and spelling
- 2-- describes only two things about the house using math words and adjectives

includes only four parts of a letter

sometimes uses complete sentences

has very little errors in punctuation, capitalization, and spelling
- 1-- describes only one thing about the house using math words and adjectives

includes only three parts of a letter

rarely uses complete sentences

has many errors in punctuation, capitalization, and spelling
- 0-- little or no response

Directions for Designing Oink Street, Pigville, USA

Three little pigs have decided to move to a new neighborhood in Pigville, USA. You are the architect and have to design a blueprint for a new street in Pigville where they can build their own homes. One pig will build his house out of straw. Another pig will build his house out of sticks. The last pig will build his house out of bricks.

All three houses will have an area of 8 square feet on the ground level. However, each house will be a different shape. All of the houses are 2 square feet from each other. There will be no other houses or buildings on the street.

Design the houses. You must stay on the grid lines.

Label the three houses once you have designed the blueprint. Which one is made out of straw? sticks? bricks? What is the area and the perimeter of each house?

Give the design a title.

Color your design.

Writing Prompt: Writing To Persuade (Designing Oink St.)

Designing Oink Street

Pretend that you are an architect. You have just designed Oink Street for the residents of Pigville, USA. Write a letter to the mayor of Pigville trying to persuade him to allow a construction company to use your diagram when building the houses on Oink Street.

Before you begin writing, look at your diagram for Oink Street. Think about what makes your diagram of the houses so unique/special. Think about the areas and perimeters of your houses. Think about the shape of your houses. Give at least three reasons why the mayor should allow the construction company to use your diagram when building the houses on Oink Street. Remember the five parts of a letter.

Now, write your persuasive letter to the mayor of Pigville. Since the mayor will be reading your letter and making his decision based on how you write your letter, be sure to use complete sentences and your best handwriting. Check your punctuation, capitalization, and spelling.

Holistic Rubric

Writing to Persuade: Designing Oink Street

The writer:

- 3-- describes at least three reasons the diagram should be used

includes all parts of the letter

always uses complete sentences

has no errors in punctuation, capitalization, and spelling
- 2-- describes only two reasons the diagram should be used

includes only four parts of a letter

sometimes uses complete sentences

has very little errors in punctuation, capitalization, and spelling
- 1-- describes only one reason the diagram should be used

includes only three parts of a letter

rarely uses complete sentences

has many errors in punctuation, capitalization, and spelling
- 0-- little or no response